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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/872,372	BERG, MITCHELL T.	
	Examiner	Art Unit	
	George C. Neurauter, Jr.	2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,10-12,16-22,25-27,31-34,36-43 and 45-58* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,10-12,16-22,25-27,31-34,36-43 and 45-58* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/29/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-7, 10-12, 16-22, 25-27, 31-34, 36-43, and 45-58 are currently presented and have been examined.

Response to Arguments

The Applicant's response to the 35 USC 112 rejections is persuasive and the rejections have been withdrawn.

Applicant's arguments filed 29 May 2007 have been fully considered but they are not persuasive.

The Applicant argues that the combined teachings of Aversa and Snoeren do not teach or suggest migrating the unbound data structure associated with the connection to the selected computer device. The Examiner respectfully does not agree in view of the teachings of Snoeren (see at least pages 5 and 6, specifically "Fundamentally, the Migrate options allows corresponding hosts to synchronize two separate TCP connections such that the context is identical. In particular, establishment of the second connection terminates the first, and transfers the original TCB to the second connection..." and "...the correspondent host terminates the first connection (without emitting any further packets) and instantiates the second connection with a TCB identical to the first. The new connection is associated with the same socket (application) as the first. In practice, this is often implemented by simply modifying the

TCB of the first connection rather than allocating an entirely new one.") Therefore, Snoeren clearly discloses this limitation.

The Applicant also argues that the combine teachings of the references do not teach or suggest disassociating the application of the first computing device from the data structure and subsequently outputting a reference to the data structure associated with the connection. The Examiner also does not agree in view of the teachings of Snoeren (see at least pages 5-6 and 10, specifically "Fundamentally, the Migrate options allows corresponding hosts to synchronize two separate TCP connections such that the context is identical. In particular, establishment of the second connection terminates the first, and transfers the original TCB to the second connection...the correspondent host terminates the first connection (without emitting any further packets) and instantiates the second connection with a TCB identical to the first. The new connection is associated with the same socket (application) as the first. In practice, this is often implemented by simply modifying the TCB of the first connection rather than allocating an entirely new one." and "After altering the TCB, a SYN/ACK packet should be generated using the sequence number of the last successfully ACKNOWLEDGED byte of data, and the ACK field set to acknowledge the last data packet on the previous connection, and the connection placed in

the SYN-RCVD state.") Therefore, Snoeren does disclose this limitation.

The Applicant also argues that the combined teachings of Aversa and Boucher do not teach a network protocol stack that is external to an operating system. The Examiner does not agree. In addition to the disclosures previously cited by the Examiner, Boucher clearly discloses that "This fast-path bypasses conventional protocol processing of headers that accompany the data. The fast-path employs a specialized microprocessor designed for processing network communication, avoiding the delays and pitfalls of conventional software layer processing, such as repeated copying and interrupts to the CPU. In effect, the fast-path replaces the states that are traditionally found in several layers of a conventional network stack with a single state machine encompassing all those layers, in contrast to conventional rules that require rigorous differentiation and separation of protocol layers. The host retains a sequential protocol processing stack which can be employed for setting up a fast-path connection or processing message exceptions." (see column 3, line 6-column 4, line 6). Therefore, Boucher clearly discloses a network protocol stack that is separate from the conventional network protocol stack.

Therefore, the currently presented claims are not in condition for allowance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 1-3, 7, 10-12, 16-18, 22, 25-27, 31-33, 37-42, 46-48, 53-54, and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Load Balancing a Cluster of Web Servers Using Distributed Packet Rewriting" to Aversa et al., January 1999, as

cited in the IDS filed 1 October 2001 in view of "TCP Connection Migration" to Snoeren et al.

Regarding claim 1, Aversa discloses an information processing system, comprising a first computing device ("server") configured to receive an initialization packet ("SYN packet") originating from a client and selecting a computing device to service the client wherein the first computing device may or may not be selected to service the client (page 3, specifically "DPR is an IP level mechanism that equips a server with the ability to redirect an incoming connection to a different server in the cluster based on the very first packets (SYN packet) received from the client."; page 4, specifically "Such requests can be either served locally or re-routed to another machine.").

Aversa does not expressly disclose storing an unbound data structure associated with a connection to the client, however, this limitation is inherent in the context of TCP connections disclosed in Aversa as demonstrated in the Applicant's admitted prior art ("AAPA") and the "Transmission Control Protocol" specification ("TCP"). Page 8, lines 1-14 of the specification discloses that "conventionally" after accepting a TCP connection from a requesting client, a server creates a data structure associated with the connection with the client to "store client-

to-server protocol specific connection information". "TCP" also discloses this in section 2.7 of the specification, specifically regarding the storing of a data structure associated with a connection to a client or "Transmission Control Block". This disclosure shows a basis in fact and/or technical reasoning to reasonably support the determination that the above limitations necessarily flow from the teachings of the applied prior art. See MPEP 2112.

Aversa continues to disclose that when the first computing device is selected to service the client, bind the unbound data structure associated with a connection to the client to an application of the first computing device (page 4, specifically "Such requests can either served locally...").

These limitations are also inherent as demonstrated by the "Transmission Control Protocol" specification ("TCP"). Section 1.5, subsections "Multiplexing" and "Connections", section 2.7, and section 3.2 of "TCP" discloses that, during the opening of a TCP connection, a socket and its associated application of a server or "first computing device" are associated with a created data structure associated with a connection to the client or "Transmission Control Block". This disclosure shows a basis in fact and/or technical reasoning to reasonably support the

determination that the above limitations necessarily flow from the teachings of the applied prior art. See MPEP 2112.

Aversa does not expressly disclose that when the first computing device is not selected to service the client, migrate the unbound data structure associated with the connection to the selected computing device.

Snoeren discloses in the context of selection of computing devices for servicing clients (page 2, specifically "The TCP migration options are motivated by the desire for a TCP that can work across changes in name-to-address mappings, e.g., due to...server-to-server migration of one end-point of a connection for...load-balancing reasons."), the data structure associated with the connection is migrated to the selected computing device (page 5, specifically "Fundamentally, the Migrate options allows corresponding hosts to synchronize two separate TCP connections such that the context is identical. In particular, establishment of the second connection terminates the first, and transfers the original TCB to the second connection...")

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of these references since Snoeren discloses that the motivation for migrating the data structure associated with a connection to a client so that connections can be transferred to another

computing device for the purposes of load balancing (page 2, specifically "The TCP migration options are motivated by the desire for a TCP that can work across changes in name-to-address mappings, e.g., due to...server-to-server migration of one end-point of a connection for...load-balancing reasons."). In view of these specific advantages and that the references are directed to managing client connections to computing devices, one of ordinary skill would have been motivated to combine these references and would have considered them to be analogous to one another based on their related fields of endeavor, which would lead one of ordinary skill to reasonably expect a successful combination of the teachings.

Regarding claim 2, Aversa and Snoeren disclose the system of claim 1.

Aversa does not expressly disclose wherein the unbound data structure includes a group of sequence numbers associated with the connection, however, this limitation is inherent in the context of TCP connections disclosed in Aversa as demonstrated in the Applicant's admitted prior art ("AAPA") and the "Transmission Control Protocol" specification ("TCP"). AAPA discloses on page 8, lines 20-23, that a data structure that includes a group of sequence numbers which is "conventionally" created by a server after accepting a TCP connection from a

requesting client. Section 3.2 of "TCP" similarly discloses the data structure or "Transmission Control Block" or "TCB" including such a group of sequence numbers. This disclosure shows a basis in fact and/or technical reasoning to reasonably support the determination that the above limitations necessarily flow from the teachings of the applied prior art. See MPEP 2112.

Regarding claim 3, Aversa and Snoeren disclose the system of claim 1.

Aversa does not expressly disclose wherein the bound data structure includes an IP address of the client, a port of an application executed by the client, an IP address of the first computing device, and a port of the application executed by the first computing device, however, this limitation is inherent in the context of TCP connections disclosed in Aversa as demonstrated in the Applicant's admitted prior art ("AAPA") and the "Transmission Control Protocol" specification ("TCP"). AAPA discloses on page 8, lines 15-19, that a data structure that includes an IP address of the client, a port of an application executed by the client, an IP address of the first computing device, and a port of the application executed by the first computing device which is "conventionally" created by a server after accepting a TCP connection from a requesting client. Section 3.2 of "TCP" similarly discloses the data structure or

"Transmission Control Block" or "TCB" including such a group of sequence numbers. This disclosure shows a basis in fact and/or technical reasoning to reasonably support the determination that the above limitations necessarily flow from the teachings of the applied prior art. See MPEP 2112.

Regarding claim 7, Aversa and Snoeren discloses the information processing system of claim 1.

Aversa does not expressly disclose wherein in response to at least the initialization packet the first computing device is configured to generate an acknowledgement to the client, however, this limitation is inherent in the context of TCP connections disclosed in Aversa as demonstrated in the "Transmission Control Protocol" specification ("TCP"). Sections 3.2 and 3.3 of "TCP" disclose wherein in response to at least the initialization or "SYN" packet the first computing device is configured to generate an acknowledgement or "ACK" to the client. This disclosure shows a basis in fact and/or technical reasoning to reasonably support the determination that the above limitations necessarily flow from the teachings of the applied prior art. See MPEP 2112.

Regarding claim 10, Aversa discloses an information processing system comprising a first computing device configured to associate an application of the first computing device with a

data structure associated with a connection to a client. (page 4, specifically "Such requests can either served locally...").

These limitations are also inherent as demonstrated by the "Transmission Control Protocol" specification ("TCP"). Section 1.5, subsections "Multiplexing" and "Connections", section 2.7, and section 3.2 of "TCP" discloses that, during the opening of a TCP connection, a socket and its associated application of a server or "first computing device" are associated with a created data structure associated with a connection to the client or "Transmission Control Block". This disclosure shows a basis in fact and/or technical reasoning to reasonably support the determination that the above limitations necessarily flow from the teachings of the applied prior art. See MPEP 2112.

Aversa does not expressly disclose selectively disassociating the application of the first computing device from the data structure and subsequently outputting a reference to the data structure associated with the connection, however, Snoeren does disclose these limitations (page 5, specifically "Fundamentally, the Migrate options allows corresponding hosts to synchronize two separate TCP connections such that the context is identical. In particular, establishment of the second connection terminates the first, and transfers the original TCB to the second connection...").

Claim 10 is rejected since the motivations regarding the obviousness of claim 1 also apply to claim 10.

Claims 11 and 12 are also rejected since these claims recite substantially the same limitations as recited in claims 2 and 3 respectively.

Claims 16-18 and 22 are also rejected since these claims recite a method that contain substantially the same limitations as recited in claims 1-3 and 7 respectively.

Claims 25-27 are also rejected since these claims recite a method that contain substantially the same limitations as recited in claims 10-12 respectively.

Regarding claim 31, Aversa and Snoeren disclose the system of claim 1.

Aversa does not expressly disclose wherein the unbound data structure comprises a connection endpoint, however, this limitation is inherent in the context of TCP connections disclosed in Aversa as demonstrated in the Applicant's admitted prior art ("AAPA") and the "Transmission Control Protocol" specification ("TCP"). Page 8, lines 1-14 of the specification discloses that "conventionally" after accepting a TCP connection from a requesting client, a server creates a data structure associated with the connection with the client to "store client-to-server protocol specific connection information". "TCP" also

discloses this in section 2.7 of the specification, specifically regarding the storing of a data structure associated with a connection to a client or "Transmission Control Block". This disclosure shows a basis in fact and/or technical reasoning to reasonably support the determination that the above limitations necessarily flow from the teachings of the applied prior art. See MPEP 2112.

Regarding claim 32, Aversa and Snoeren disclose the system of claim 1.

Aversa does not expressly disclose wherein the first computing device is configured to migrate the unbound data structure by storing a reference to a second computing device and associating the stored reference with the unbound data structure, however, Snoeren does disclose these limitations (pages 5 and 6, specifically "Fundamentally, the Migrate options allows corresponding hosts to synchronize two separate TCP connections such that the context is identical. In particular, establishment of the second connection terminates the first, and transfers the original TCB to the second connection...In practice, this is often implemented by simply modifying the TCB of the first connection rather than allocating an entirely new one.").

Claim 32 is rejected since the motivations regarding the obviousness of claim 1 also applies to claim 32.

Regarding claim 33, Aversa and Snoeren disclose the system of claim 1.

Aversa discloses wherein the first computing device is configured to select the computing device to service the client based at least in part on a state of the first computing device. (page 5, specifically "When a new request (i.e. the SYN packet of a TCP connection) is received by Server 4 from client B, Server 4 first examines its own load.")

Regarding claim 37, Aversa and Snoeren disclose the system of claim 10.

Aversa does not disclose wherein the reference is output to a second computing device for associating an application of the second computing device with the data structure of the connection, however, Snoeren does disclose these limitations (page 5, specifically "Fundamentally, the Migrate options allows corresponding hosts to synchronize two separate TCP connections such that the context is identical. In particular, establishment of the second connection terminates the first, and transfers the original TCB to the second connection...").

Claim 37 is rejected since the motivations regarding the obviousness of claim 1 also apply to claim 37.

Regarding claim 38, Aversa and Snoeren disclose the system of claim 37.

Aversa discloses wherein the application of the first computing device is of a first type and the application of the second computing device is of a second type. (page 4, specifically "Such requests can either be serviced locally or re-routed to another machine. In the latter case, the responsibility of serving the request will be transferred to another machine, which will respond directly to the client")

Regarding claim 39, Aversa and Snoeren disclose the system of claim 37.

Aversa does not expressly disclose wherein the first computing device is configured to selectively disassociate the application of the first computing device from the data structure based at least in part on a state of at least one of the first computing device or the second computing device, however, Aversa does disclose wherein the first computing device is configured to select a second computing device to service the client based at least in part on a state of the first computing device or the second computing device. (page 5, specifically "Hosts intermittently broadcast their load to the other machines...This information is used by a server to determine whether an incoming request should be re-routed or whether it

should be served locally...When a new request (i.e. the SYN packet of a TCP connection) is received by Server 4 from client B, Server 4 first examines its own load.")

Snoeren discloses wherein the first computing device is configured to selectively disassociate the application of the first computing device from the data structure based on the state of the first computing device and the second computing device (page 2, specifically "The TCP migration options are motivated by the desire for a TCP that can work across changes in name-to-address mappings, e.g., due to...server-to-server migration of one end-point of a connection for...load-balancing reasons."; page 5, specifically "Fundamentally, the Migrate options allows corresponding hosts to synchronize two separate TCP connections such that the context is identical. In particular, establishment of the second connection terminates the first, and transfers the original TCB to the second connection...")

Claim 39 is rejected since the motivations regarding the obviousness of claim 1 also apply to claim 39.

Claims 40-42 and 46-48 are also rejected since these claims recite substantially the same limitations as recited in claims 31-33 and 37-39 respectively.

Claim 53 is rejected since this claim recites substantially the same limitations as recited in claims 10 and 37 in combination and is subject to the same rationale as shown above regarding claim 1.

Claim 54 is rejected since this claim recites substantially the same limitations as recited in claim 11.

Regarding claim 57, Aversa and Snoeren disclose a computer-readable memory medium of claim 53.

Aversa and Snoeren do not expressly disclose re-associating the application of the first server to the data structure associated with the connection to the client, however, Snoeren does suggest that in the context of load balancing it may be preferable to associate a connection with a new server (page 2, specifically "The TCP migration options are motivated by the desire for a TCP that can work across changes in name-to-address mappings, e.g., due to...server-to-server migration of one end-point of a connection for...load-balancing reasons."; page 5, specifically "Fundamentally, the Migrate options allows corresponding hosts to synchronize two separate TCP connections such that the context is identical. In particular, establishment of the second connection terminates the first, and transfers the original TCB to the second connection...")

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Aversa and Snoeren to re-associate the application of the first server to the data structure associated with the connection to the client because one of ordinary skill, given the suggestion within Snoeren that, in order to keep loads balanced between at least two servers, it would be preferable to migrate the connection to another server. Also, Aversa discloses the ability of servers to determine the load of other servers based on messages sent to each server and that this information is used to determine whether a server should select a different server to serve a connection (page 5, specifically "Hosts intermittently broadcast their load to the other machines...This information is used by a server to determine whether an incoming request should be re-routed or whether it should be served locally). Therefore, it would have been reasonably suggested to one of ordinary skill in the art by the suggestions of Snoeren and Aversa that it would be possible for a connection to be re-associated with the first server in the event that the load on the second server becomes too high and the first server's load is now able handle the connection. Therefore, this limitation would have been obvious to one of ordinary skill since the

teachings and suggestions of Aversa and Snoeren reasonably suggest this limitation.

2. Claims 4-6, 19-21, 34, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aversa in view of US Patent 6,334,153 to Boucher et al.

Regarding claim 4, Aversa discloses an information processing system, comprising a first computing device configured to receive a request packet originating from a client and when the packet is associated with a connection that corresponds to an application of the first computing device, forward the packet to a network protocol stack of the first computing device and when the packet is not associated with a connection that corresponds to an application of the first computing device, selectively encapsulate the packet and forward the encapsulated packet. (page 3, specifically "...a DPR-enabled server either forwards a connection to a different server, or lets it percolate up its network stack..."; page 4, specifically "Such requests can be either served locally or re-routed to another machine."; page 4 and 5, specifically "if Server 4 reroutes a request to Server 2, the Server 4 must let Server 2 know Client's B's IP address in order for Server 2 to respond to Client B's request properly...Using IP-IP encapsulation, Server

4 encapsulates the original packet received from client B inside another IP packet, which is then re-routed to Server 2.")

Aversa does not expressly disclose forwarding the packet and a reference to an associated connection endpoint to a network protocol stack of the first computing device that is external to an operating system of the first computing device, however, Boucher does disclose forwarding the packet and a reference to an associated connection endpoint ("communication control block") to a network protocol stack of the first computing device that is external to an operating system of the first computing device ("fast path") (column 3, line 40-column 4, line 10, specifically column 3, line 62-column 4, line 6; column 5, lines 41-54)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of these references since Boucher discloses that forwarding a packet a reference to an associated connection endpoint to a network protocol stack external to an operating system of the first device allows the network protocol stack external to the operating system to bypass conventional protocol processing by the conventional network stack within the operating system to accelerate processing of packet headers (column 3, line 62-column 4, line 6). In view of these specific advantages and that

the references are directed to processing by network protocol stacks of packets, one of ordinary skill would have been motivated to combine these references and would have considered them to be analogous to one another based on their related fields of endeavor, which would lead one of ordinary skill to reasonably expect a successful combination of the teachings.

Claims 5-6 are also rejected since these claims recite substantially the same limitations as recited in claims 2 and 3 respectively.

Claims 19-21 are also rejected since these claims recite a method that contains substantially the same limitations as recited in claims 4-6 respectively.

Regarding claim 34, Aversa and Boucher disclose the system of claim 4.

Aversa discloses wherein the application of the first computing device is a socket-based application (page 4, specifically "Such requests can either served locally...").

This limitation is also inherent as demonstrated by the "Transmission Control Protocol" specification ("TCP"). Section 1.5, subsections "Multiplexing" and "Connections", section 2.7, and section 3.2 of "TCP" discloses that, during the opening of a TCP connection, a socket and its associated application of a server or "first computing device" are associated with a created

data structure associated with a connection to the client or "Transmission Control Block". This disclosure shows a basis in fact and/or technical reasoning to reasonably support the determination that the above limitations necessarily flow from the teachings of the applied prior art. See MPEP 2112.

Claim 43 is also rejected since this claim recites substantially the same limitations as recited in claim 34.

3. Claims 36, 45, 49-52, 55-56, and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aversa and Boucher as applied to claim 4 above, and further in view of Snoeren.

Regarding claim 36, Aversa and Boucher disclose the system of claim 4.

Aversa and Boucher do not disclose wherein the encapsulated packet includes a reference to the associated connection endpoint, however, Aversa does disclose the encapsulated packet as described above regarding claim 4.

Snoeren discloses wherein a packet sent to the second computing device includes a reference to a connection endpoint associated with the data packet (page 5, specifically "Fundamentally, the Migrate options allows corresponding hosts to synchronize two separate TCP connections such that the context is identical. In particular, establishment of the

second connection terminates the first, and transfers the original TCB to the second connection...").

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of these references since Snoeren discloses that the motivation for migrating the data structure associated with a connection to a client so that connections can be transferred to another computing device for the purposes of load balancing (page 2, specifically "The TCP migration options are motivated by the desire for a TCP that can work across changes in name-to-address mappings, e.g., due to...server-to-server migration of one end-point of a connection for...load-balancing reasons."). In view of these specific advantages and that the references are directed to managing and processing client connections to computing devices, one of ordinary skill would have been motivated to combine these references and would have considered them to be analogous to one another based on their related fields of endeavor, which would lead one of ordinary skill to reasonably expect a successful combination of the teachings.

Claim 45 is also rejected since this claim recites substantially the same limitations as recited in claim 36.

Claim 49 is rejected since this claim recites substantially the same limitations as recited in claims 4 and 36 in

combination and is subject to the same rationale as shown above regarding claim 36.

Claim 50 is rejected since this claim recites substantially the same limitations as recited in claim 5.

Claim 51 is rejected since this claim recites substantially the same limitations as recited in claim 5 and 36 in combination and is subject to the same rationale as shown above regarding claim 36.

Claim 52 is rejected since this claim recites substantially the same limitations as recited in claim 6.

Claim 55 is rejected since this claim recites substantially the same limitations as recited in claims 11 and 36 in combination and is subject to the same rationale as shown above regarding claim 36.

Claim 56 is rejected since this claim recites substantially the same limitations as recited in claim 12 and 36 in combination and is subject to the same rationale as shown above regarding claim 36.

Regarding claim 58, Aversa discloses a first server ("server") configured to receive an initialization packet ("SYN packet") originating from a client. (page 3, specifically "DPR is an IP level mechanism that equips a server with the ability to redirect an incoming connection to a different server in the

cluster based on the very first packets (SYN packet) received from the client."; page 4, specifically "Such requests can be either served locally or re-routed to another machine.")

Aversa does not expressly disclose a memory configured to store a data structure associated with a connection to a client originating an initialization packet, however, this limitation is inherent in the context of TCP connections disclosed in Aversa as demonstrated in the Applicant's admitted prior art ("AAPA") and the "Transmission Control Protocol" specification ("TCP"). Page 8, lines 1-14 of the specification discloses that "conventionally" after accepting a TCP connection from a requesting client, a server creates a data structure associated with the connection with the client to "store client-to-server protocol specific connection information". "TCP" also discloses this in section 2.7 of the specification, specifically regarding the storing of a data structure associated with a connection to a client or "Transmission Control Block". This disclosure shows a basis in fact and/or technical reasoning to reasonably support the determination that the above limitations necessarily flow from the teachings of the applied prior art. See MPEP 2112.

Aversa continues to disclose a module configured to selectively bind the data structure associated with a connection

to the client to an application of the server (page 4, specifically "Such requests can either served locally...").

These limitations are also inherent as demonstrated by the "Transmission Control Protocol" specification ("TCP"). Section 1.5, subsections "Multiplexing" and "Connections", section 2.7, and section 3.2 of "TCP" discloses that, during the opening of a TCP connection, a socket and its associated application of a server or "first computing device" are associated with a created data structure associated with a connection to the client or "Transmission Control Block". This disclosure shows a basis in fact and/or technical reasoning to reasonably support the determination that the above limitations necessarily flow from the teachings of the applied prior art. See MPEP 2112.

Aversa does not disclose a network protocol stack external to an operating system of the first server, however, Boucher does disclose this limitation ("fast path") (column 3, line 40-column 4, line 10, specifically column 3, line 62-column 4, line 6; column 5, lines 41-54)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of these references since Boucher discloses that a network protocol stack external to an operating system of the first server allows the network protocol stack to bypass conventional

protocol processing by the conventional network stack within the operating system to accelerate processing of packet headers (column 3, line 62-column 4, line 6). In view of these specific advantages and that the references are directed to processing by network protocol stacks of packets, one of ordinary skill would have been motivated to combine these references and would have considered them to be analogous to one another based on their related fields of endeavor, which would lead one of ordinary skill to reasonably expect a successful combination of the teachings.

Aversa and Boucher do not expressly disclose that when the first server is not selected to service the client, to migrate the data structure associated with the connection.

Snoeren discloses in the context of selection of computing devices for servicing clients (page 2, specifically "The TCP migration options are motivated by the desire for a TCP that can work across changes in name-to-address mappings, e.g., due to...server-to-server migration of one end-point of a connection for...load-balancing reasons."), the data structure associated with the connection is migrated to the selected computing device (page 5, specifically "Fundamentally, the Migrate options allows corresponding hosts to synchronize two separate TCP connections such that the context is identical. In particular,

establishment of the second connection terminates the first, and transfers the original TCB to the second connection...")

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of these references since Snoeren discloses that the motivation for migrating the data structure associated with a connection to a client so that connections can be transferred to another computing device for the purposes of load balancing (page 2, specifically "The TCP migration options are motivated by the desire for a TCP that can work across changes in name-to-address mappings, e.g., due to...server-to-server migration of one end-point of a connection for...load-balancing reasons."). In view of these specific advantages and that the references are directed to managing client connections to computing devices, one of ordinary skill would have been motivated to combine these references and would have considered them to be analogous to one another based on their related fields of endeavor, which would lead one of ordinary skill to reasonably expect a successful combination of the teachings.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George C. Neurauter, Jr. whose telephone number is 571-272-3918. The examiner can normally be reached on Monday-Friday 9am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wiley, can be reached on 571-272-3923. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

George C. Neurauter, Jr.
Patent Examiner